



INTERNATIONAL SEARCH REPORT

Res'...

International application No.

PCT/KR03/00779

10/511916
18 OCT 2004

A. CLASSIFICATION OF SUBJECT MATTER IPC7 H04N 7/015 According to International Patent Classification (IPC) or to both national classification and IPC												
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int. Cl.6 H04N 5/14, Int. Cl. 7 H04B 7/005, H03M 13/41, H04B 1/10, 3/06, 7/26 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched KR, JP. IPC as above Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKIPASS "KALMAN-VITERBI", "JOINT", "CHANNEL", "EQUALIZER"												
C. DOCUMENTS CONSIDERED TO BE RELEVANT												
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.										
A	KR 1999-0038973 A (HYUNDAE ELECTRONICS INDUSTRIAL CO., LTD), June 05, 1999 (05. 06. 1999), (Family : none), - See the whole document	1-7										
A	JP 2001-251226 A (YRPKOKINOIDOTAITSUSHINKENKYUSHO:KK), September 14, 2001 (14. 09. 2001), (Family : none), - See the whole document	1,3,4,5,7										
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.												
<p>* Special categories of cited documents:</p> <table border="0"><tr><td>"A" document defining the general state of the art which is not considered to be of particular relevance</td><td>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td></tr><tr><td>"E" earlier application or patent but published on or after the international filing date</td><td>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td></tr><tr><td>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)</td><td>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td></tr><tr><td>"O" document referring to an oral disclosure, use, exhibition or other means</td><td>"&" document member of the same patent family</td></tr><tr><td>"P" document published prior to the international filing date but later than the priority date claimed</td><td></td></tr></table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	"P" document published prior to the international filing date but later than the priority date claimed	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention											
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone											
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art											
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family											
"P" document published prior to the international filing date but later than the priority date claimed												
Date of the actual completion of the international search 23 MAY 2003 (23.05.2003)		Date of mailing of the international search report 26 MAY 2003 (26.05.2003)										
Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140		Authorized officer CHOI, Hoon Telephone No. 82-42-481-5990 										

Form PCT/ISA/210 (second sheet) (July 1998)

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0/511916

Rec'd PCT/PTO 18 OCT 2004

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OPP030412KR

PCT REQUEST

Original (for SUBMISSION) - printed on 17.04.2003 10:34:28 AM

0	For receiving Office use only	
0-1	International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4	Form - PCT/RO/101 PCT Request	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.04.2003)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	Korean Intellectual Property Office (RO/KR)
0-7	Applicant's or agent's file reference	OPP030412KR
I	Title of invention	KALMAN-VITERBI JOINT CHANNEL EQUALIZER
II	Applicant	
II-1	This person is:	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE
II-5	Address:	161, Gajeong-dong, Yuseong-gu 305-350 Daejeon Republic of Korea
II-6	State of nationality	KR
II-7	State of residence	KR
II-8	Telephone No.	+82-42-860-6931
II-9	Facsimile No.	+82-42-860-3831
III-1	Applicant and/or inventor	
III-1-1	This person is:	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	KIM, Sung-Hoon
III-1-5	Address:	Galma Apt. 203-304, Galma-dong, Seo-gu, 302-755 Daejeon-city, Republic of Korea
III-1-6	State of nationality	KR
III-1-7	State of residence	KR

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PCT REQUEST

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OPP030412KR

Original (for SUBMISSION) - printed on 17.04.2003 10:34:28 AM

III-2	Applicant and/or inventor	
III-2-1	This person is:	applicant and inventor
III-2-2	Applicant for	US only
III-2-4	Name (LAST, First)	SIM, Yong-Hun
III-2-5	Address:	Yegreen Villa 201, 8/1, 36-50, Eungam 1-dong, Eunpyung-gu, 122-905 Seoul Republic of Korea
III-2-6	State of nationality	KR
III-2-7	State of residence	KR
III-3	Applicant and/or inventor	
III-3-1	This person is:	applicant and inventor
III-3-2	Applicant for	US only
III-3-4	Name (LAST, First)	KIM, Seung-Won
III-3-5	Address:	Narae Apt. 109-1804, Jeonmin-dong, Yuseong-gu, 305-729 Daejeon-city Republic of Korea
III-3-6	State of nationality	KR
III-3-7	State of residence	KR
III-4	Applicant and/or inventor	
III-4-1	This person is:	applicant and inventor
III-4-2	Applicant for	US only
III-4-4	Name (LAST, First)	AHN, ChieTeuk
III-4-5	Address:	Expo Apt. 208-603, Jeonmin-dong, Yuseong-gu, 305-761 Daejeon-city, Republic of Korea
III-4-6	State of nationality	KR
III-4-7	State of residence	KR
III-5	Applicant and/or inventor	
III-5-1	This person is:	applicant and inventor
III-5-2	Applicant for	US only
III-5-4	Name (LAST, First)	KIM, Dae-Jin
III-5-5	Address:	Chonnam National University, 300, Yongbong-dong, Buk-gu, 500-757 Gwangju-city Republic of Korea
III-5-6	State of nationality	KR
III-5-7	State of residence	KR

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PCT REQUEST

OPP030412KR

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IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name	YOU ME PATENT AND LAW FIRM
IV-1-2	Address:	Teheran Bldg., 825-33, Yoksam-dong, Kangnam-ku 135-080 Seoul Republic of Korea
IV-1-3	Telephone No.	+82-2-3458-0700
IV-1-4	Facsimile No.	+82-2-553-5254
IV-1-5	e-mail	email@youme.com
V	Designation of States	
V-1	Regional Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	<p>AP: GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW and any other State which is a Contracting State of the Harare Protocol and of the PCT</p> <p>EA: AM AZ BY KG KZ MD RU TJ TM and any other State which is a Contracting State of the Eurasian Patent Convention and of the PCT</p> <p>EP: AT BE BG CH&LI CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR and any other State which is a Contracting State of the European Patent Convention and of the PCT</p> <p>OA: BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG and any other State which is a member State of OAPI and a Contracting State of the PCT</p>
V-2	National Patent (other kinds of protection or treatment, if any, are specified between parentheses after the designation(s) concerned)	<p>AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH&LI CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW</p>

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V-5	Precautionary Designation Statement In addition to the designations made under items V-1, V-2 and V-3, the applicant also makes under Rule 4.9(b) all designations which would be permitted under the PCT except any designation(s) of the State(s) indicated under item V-6 below. The applicant declares that those additional designations are subject to confirmation and that any designation which is not confirmed before the expiration of 15 months from the priority date is to be regarded as withdrawn by the applicant at the expiration of that time limit.		
V-6	Exclusion(s) from precautionary designations	NONE	
VI-1	Priority claim of earlier national application		
VI-1-1	Filing date	17 April 2002 (17.04.2002)	
VI-1-2	Number	10-2002-0020845	
VI-1-3	Country	KR	
VII-1	International Searching Authority Chosen	Korean Intellectual Property Office (KIPO) (ISA/KR)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	-	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	-	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	-	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	
IX	Check list	number of sheets	electronic file(s) attached
IX-1	Request (including declaration sheets)	5	-
IX-2	Description	14	-
IX-3	Claims	3	-
IX-4	Abstract	1	EZABST00.TXT
IX-5	Drawings	3	-
IX-7	TOTAL	26	
	Accompanying items	paper document(s) attached	electronic file(s) attached
IX-8	Fee calculation sheet	✓	-
IX-9	Original separate power of attorney		-
IX-11	Copy of general power of attorney		-
IX-17	PCT-EASY diskette	-	Diskette
IX-19	Figure of the drawings which should accompany the abstract	3	

PCT REQUEST

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IX-20	Language of filing of the international application	Korean
X-1	Signature of applicant, agent or common representative	
X-1-1	Name	YOU ME PATENT AND LAW FIRM
X-1-2	Name of signatory	KIM, Won-Ho
X-1-3	Capacity	Representative



FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/KR
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
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PCT (ANNEX - FEE CALCULATION SHEET)

OPP030412KR

Original (for SUBMISSION) - printed on 17.04.2003 10:34:28 AM

(This sheet is not part of and does not count as a sheet of the international application)

0	For receiving Office use only	
0-1	International Application No.	
0-2	Date stamp of the receiving Office	
0-4	Form - PCT/RO/101 (Annex) PCT Fee Calculation Sheet	
0-4-1	Prepared using	PCT-EASY Version 2.92 (updated 01.04.2003)
0-9	Applicant's or agent's file reference	OPP030412KR
2	Applicant	ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE, et al.
12	Calculation of prescribed fees	fee amount/multiplier. Total amounts (KRW)
12-1	Transmittal fee T	⇒ 45,000
12-2-1	Search fee S	⇒ 150,000
12-2-2	International search to be carried out by	KR
12-3	International fee	
	Basic fee	
	(first 30 sheets) b1	530,000
12-4	Remaining sheets	0
12-5	Additional amount (X)	12,000
12-6	Total additional amount b2	0
12-7	b1 + b2 = B	530,000
12-8	Designation fees	
	Number of designations contained in international application	95
12-9	Number of designation fees payable (maximum 5)	5
12-10	Amount of designation fee (X)	114,000
12-11	Total designation fees D	570,000
12-12	PCT-EASY fee reduction R	-163,000
12-13	Total International fee (B+D-R) I	⇒ 937,000
12-17	TOTAL FEES PAYABLE (T+S+I+P)	⇒ 1,132,000
12-19	Mode of payment	cash

VALIDATION LOG AND REMARKS

13-2-1	Validation messages Request	Green? A translation of the international application into English will have to be prepared under the responsibility of the ISA selected.
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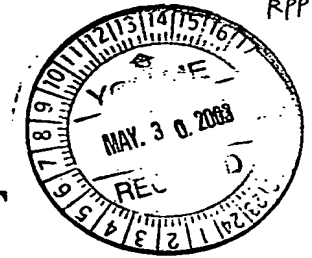
PCT (ANNEX - FEE CALCULATION SHEET)

OPP030412KR

Original (for SUBMISSION) - printed on 17.04.2003 10:34:28 AM

		Green? Please note that the entire request (including the title of invention) must be in English.
13-2-7	Validation messages Contents	Green? Priority 1. The priority document is not enclosed. (The applicant must furnish it within 16 months from the earliest priority date claimed)
		Yellow Accompanying item "copy of general power of attorney" has not been indicated as enclosed.
		Yellow Accompanying item "original separate power of attorney" has not been indicated as enclosed.
13-2-1 1	Validation messages For receiving Office/International Bureau use only	Green? Verify electronic data for consistency against printed form.

특 허 협 력 조 약
(PATENT COOPERATION TREATY)



발신 : 국제조사기관

수신 :

YOU ME Patent & Law Firm

Teheran Bldg., 825-33 Yoksam-dong, Kangnam-ku,
Seoul 135-080, Republic of KOREA

PCT

국제조사보고서 또는 국제조사보고서
부작성 선언서 송부 통지서

(PCT 규칙 44.1)

출원인 또는 대리인 서류참조기호 OPP030412KR	발송일 (일/월/년) 28 MAY 2003 (28.05.2003)
국제출원번호 PCT/KR03/00779	이후의 절차에 대하여는 아래 1. 및 4. 참조
출원인 ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE et al	국제출원일 (일/월/년) 17 APRIL 2003 (17.04.2003)

1. ☒ 국제보고서가 작성되어 이를 송부함을 출원인에게 통지합니다.
조약 제19조의 규정에 의한 보정서 및 설명서의 제출:
희망하는 경우 출원인은 국제출원의 청구의 범위를 보정할 수 있습니다.(조약규칙 46):
기간 보정서 제출기간은 통상 국제조사보고서 송부일로부터 2월.

제출처 The international Bureau of WIPO
34, chemin des Colmbetts
1211 Geneva 20, Switzerland
Facsimile No. : (41-22) 740 14 35

보다 자세한 지침에 대하여는 첨부되는 용지에 기재된 설명을 참조.

2. ☐ 국제조사보고서가 작성되지 아니할 것이며 조약 제17조(2)(a)의 규정에 의한 선언서가 송부됨을 출원인에게 통지합니다.
3. ☐ 조약규칙 40.2의 규정에 의한 추가수수료 납부에 대한 이의신청과 관련하여 아래 사항을 출원인에게 통지합니다.
- ☐ 이의신청 및 이의신청에 대한 결정 통지서를 출원인이 제출한 이의신청 및 이의신청에 대한 결정 통지서의 지정관청에의 송부 신청서와 함께 국제사무국에 송부하였습니다.
- ☐ 이의신청에 대한 결정이 아직 이루어지지 않았습니다; 결정이 이루어지는 대로 출원인에게 통지할 것입니다.

4. 주의사항

우선일부터 18월 직후 국제사무국은 국제출원을 공개합니다. 공개를 하지 않거나 또는 연기할 것을 희망하는 경우에는 출원인은 국제공개의 기술적 준비가 완료되기 전에 각각의 경우에 따라 조약 규칙 90bis.1 및 90bis.3의 규정에 의한 국제출원 취하서 또는 우선권주장 취하서를 국제사무국에 제출하여야 합니다.

일부 지정관청에 대하여는 출원인이 우선일부터 30월까지 (일부관청에 대하여는 더 늦을 수도 있음) 국내단계의 개시를 연기하고자 하는 경우에는 우선일부터 19월 이내에 국제예비심사를 청구하여야 합니다; 그렇지 않은 경우 출원인은 우선일부터 20월 이내에 당해 지정관청에 대한 국내단계의 개시를 위한 규정된 절차를 밟아야 합니다.

다른 지정관청에 대하여는, 우선일부터 19월 이내에 국제예비심사를 청구하지 않더라도 30월(또는 더 늦을 수도 있음)의 기간이 적용될 것입니다.

서식 PCT/IB/301의 부속서류를 참조하기 바라며, 각 특허청마다의 적용기간에 대한 구체적인 사항은 PCT출원인 안내 제2권 국내단계 및 WIPO 인터넷 사이트를 참조하시기 바랍니다.

ISA/KR의 명칭 및 우편주소



대한민국 특허청
302-701 대한민국 대전광역시 서구 둔산동
920번지 정부대전청사

팩스 번호 82-42-472-7140

특허청장



전화번호 82-42-481-5208

서식 PCT/ISA/220 (2002년 4월)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference OPP030412KR	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/KR03/00779	International filing date (<i>day/month/year</i>) 17 APRIL 2003 (17.04.2003)	(Earliest) Priority Date (<i>day/month/year</i>) 17 APRIL 2002 (17.04.2002)
Applicant ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawing to be published with the abstract is Figure No. 3

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR03/00779

A. CLASSIFICATION OF SUBJECT MATTER**IPC7 H04N 7/015**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl.6 H04N 5/14, Int. Cl. 7 H04B 7/005, H03M 13/41, H04B 1/10, 3/06, 7/26

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
KR, JP. IPC as aboveElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)
eKIPASS "KALMAN-VITERBI", "JOINT", "CHANNEL", "EQUALIZER"**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 1999-0038973 A (HYUNDAE ELECTRONICS INDUSTRIAL CO., LTD), June 05, 1999 (05. 06. 1999), (Family : none), - See the whole document	1-7
A	JP 2001-251226 A (YRPKOKINOIDOTAITSUSHINKENKYUSHO:KK), September 14, 2001 (14. 09. 2001), (Family : none), - See the whole document	1,3,4,5,7

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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